

# Classification of Elements and Periodicity in Properties

NEET previous year questions · Chemistry

6 questions from the official papers: NEET 2026 (2), Re-NEET 2026 (2), NEET 2020 (2). Each is followed by its answer and a worked solution written by BrainIt. Generated on 23 October 2026.



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### 1. NEET 2026 · Q64

The correct order of increasing metallic character of Na, Be, P, Mg and Si is:

- (1)  $P < Si < Be < Mg < Na$       (2)  $P < Si < Na < Mg < Be$   
 (3)  $P < Mg < Be < Si < Na$       (4)  $Be < Si < P < Mg < Na$

#### Answer (1)

**Sol.** Metallic character decreases across a period (left to right) and increases down a group, and it is inversely related to electronegativity. Using Pauling electronegativities (Na 0.9 < Mg 1.2 < Be 1.5 < Si 1.8 < P 2.1), metallic character increases in the reverse order:  $P < Si < Be < Mg < Na$ .

### 2. NEET 2026 · Q88

Identify the incorrect statement from the following:

- (1) The largest and the smallest species among Mg,  $Mg^{2+}$ , Al and  $Al^{3+}$  are Al and  $Mg^{2+}$  respectively.  
 (2) The IUPAC name of the element with atomic number 107 is Unnilseptium.  
 (3) The similarity in behaviour of Li with Mg is referred to as 'diagonal relationship'.  
 (4) The oxidation state and covalency of Al in  $[AlCl(H_2O)_5]^{2+}$  are 3 and 6, respectively.

#### Answer (1)

**Sol.** Cationic size decreases with increasing positive charge and across a period, so among Mg,  $Mg^{2+}$ , Al and  $Al^{3+}$  the largest species is neutral Mg and the smallest is  $Al^{3+}$ , not Al and  $Mg^{2+}$ ; hence statement (1) is incorrect and is the answer. The others are correct: element 107 is Unnilseptium, Li and Mg show a diagonal relationship, and Al in the given complex has oxidation state +3 with covalency 6.

### 3. Re-NEET 2026 · Q53

Among the following options, the correct trend in the electron gain enthalpy is

- (1)  $F > Cl > Br > I$       (2)  $Br > Cl > F > I$   
 (3)  $Cl > F > Br > I$       (4)  $I > Br > Cl > F$

#### Answer (3)

**Sol.** Chlorine, not fluorine, releases the most energy on gaining an electron. The 2p subshell of fluorine is so compact that the incoming electron meets strong inter-electronic repulsion, which offsets the favourable nuclear attraction; chlorine's larger 3p shell has no such penalty. Down the rest of the group the value falls with increasing size, giving  $Cl > F > Br > I$ . NCERT Class 11, Classification of Elements and Periodicity in Properties.

### 4. Re-NEET 2026 · Q70

Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R.

Assertion (A): The first ionization enthalpy of O is lower than that of N and F.

Reason (R): The loss of an electron from O leads to stable half-filled p orbital

In light of the above statements, choose the most appropriate answer from the options given below:

- (1) Both A and R are correct and R is the correct explanation of A  
 (2) Both A and R are correct and R is NOT the correct explanation of A  
 (3) A is correct but R is not correct.  
 (4) A is not correct but R is correct

#### Answer (1)

**Sol.** Oxygen is  $[He]2s^2 2p^4$ , the fourth 2p electron must pair up in an already-occupied orbital and suffers

extra repulsion, so it is comparatively easy to remove. Losing it gives  $O^+$  with the  $2p^3$  half-filled configuration, which is extra stable through exchange energy. That is precisely why oxygen's first ionization enthalpy dips below nitrogen's despite nitrogen having a smaller nuclear charge, and stays below fluorine's. R therefore explains A. NCERT Class 11, Classification of Elements and Periodicity in Properties.

5. NEET 2020 · Q114

Identify the incorrect match.

| List I         | List II          |
|----------------|------------------|
| P) Unnilunium  | I) Mendelevium   |
| Q) Unniltrium  | II) Lawrencium   |
| R) Unnilhexium | III) Seaborgium  |
| S) Unununnium  | IV) Darmstadtium |

- (1) Q-II      (2) R-III      (3) S-IV      (4) P-I

**Answer (3)**

**Sol.** Unnilunium, unniltrium and unnilhexium correctly correspond to elements 101, 103 and 106. The printed 'Unununnium' denotes element 111, whose official name is roentgenium, not darmstadtium; therefore S-IV is the incorrect match. Chapter: Classification of Elements and Periodicity in Properties.

6. NEET 2020 · Q116

Match each oxide with its nature and select the correct option.

| List I       | List II        |
|--------------|----------------|
| P) CO        | I) Basic       |
| Q) BaO       | II) Neutral    |
| R) $Al_2O_3$ | III) Acidic    |
| S) $Cl_2O_7$ | IV) Amphoteric |

- (1) P-II, Q-I, R-IV, S-III      (2) P-III, Q-IV, R-I, S-II  
 (3) P-IV, Q-III, R-II, S-I      (4) P-I, Q-II, R-III, S-IV

**Answer (1)**

**Sol.** CO is neutral, BaO basic,  $Al_2O_3$  amphoteric and  $Cl_2O_7$  acidic. Thus P-II, Q-I, R-IV, S-III. Chapter: Classification of Elements and Periodicity in Properties.

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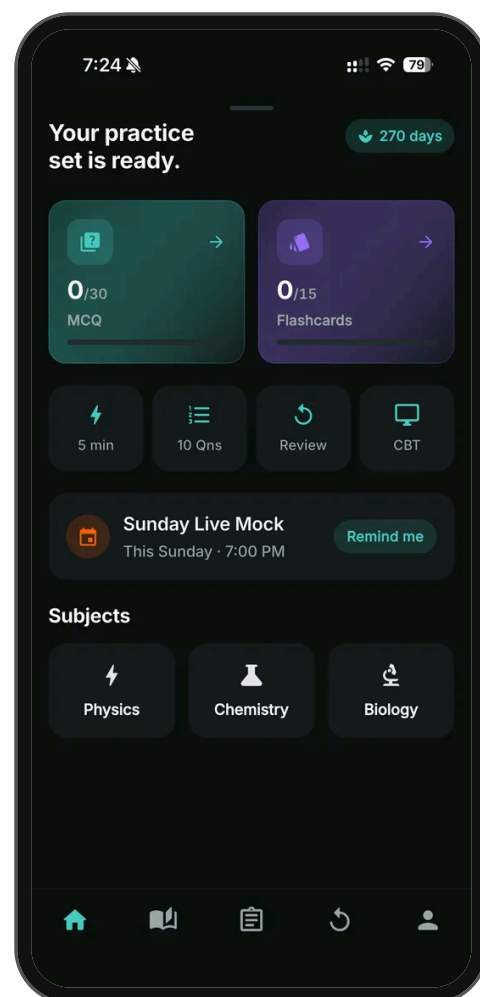
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